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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,364	08/20/2001	Paul H. Gailus	CM04766H	7135

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EXAMINER	
HASHEM, LISA	
ART UNIT	PAPER NUMBER
2645	3

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/933,364	GAILUS ET AL.	
	Examiner	Art Unit	
	Lisa Hashem	2645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/8-20-2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 are pending in this office action.

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS form 1449, Paper No. 2, is attached to the instant office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 recites the limitation "the reverse path" in page 17. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 13 recites the limitation "the steps" in page 19. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,574,992 by Cygan et al, hereinafter Cygan.

Regarding claim 1, Cygan discloses in an electrical device having a variable output, a

feedback loop for adjusting the variable output, the feedback loop comprising (see Abstract; Figure 1, 100; column 1, lines 14-50): at least one adjustable zero element (column 2, line 4 – column 3, line 2).

Regarding claim 2, the feedback loop of claim 1, wherein Cygan further discloses the adjustable zero element is in a forward path of the feedback loop (column 2, lines 43-50; column 4, lines 45-64).

Regarding claim 3, the feedback loop of claim 1, wherein Cygan further discloses having a characteristic bandwidth, the feedback loop further comprising: at least one adjustable pole element; whereby the at least one adjustable zero element and at least one adjustable pole element are operable to change the characteristic bandwidth of the feedback loop (column 3, line 66 – column 4, line 28; column 4, lines 45-64).

Regarding claim 4, the feedback loop of claim 3, wherein Cygan further discloses the at least one adjustable pole element is in a forward path of the feedback loop (column 3, line 66 – column 4, line 28; see Figures 3-4).

Regarding claim 5, the feedback loop of claim 4, wherein Cygan further discloses the at least one adjustable zero element is in the forward path of the feedback loop and further comprising: a mixer in the forward path of the feedback loop (Figure 2, 207); and a mixer in a reverse path of the feedback loop (Figure 2, 208; column 1, lines 14-32).

Regarding claim 6, the feedback loop of claim 5, wherein Cygan further discloses: a power amplifier in the forward path so that the feedback loop can be used as part of a radio transmitter (column 2, lines 22-26).

Regarding claim 7, the feedback loop of claim 3, wherein Cygan further discloses the feedback loop is a Cartesian feedback loop (column 1, lines 14-32).

Regarding claim 8, the feedback loop of claim 3, wherein Cygan further discloses the adjustable pole element is a circuit comprising a plurality of elements having impedance that can be selectively coupled to the other elements of the circuit (column 3, line 66 – column 4, line 28).

Regarding claim 9, the feedback loop of claim 3, wherein Cygan further discloses the at least one adjustable pole element and the at least one adjustable zero element are substantially contained within an integrated circuit (see Figure 1; column 2, lines 43-50; column 3, line 66 – column 4, line 28; column 4, lines 45-64).

Regarding claim 10, the feedback loop of claim 3, wherein Cygan further discloses the adjustable pole element is in the forward path of the feedback loop (see Figures 3-4; column 3, line 66 – column 4, line 28).

Regarding claim 11, the feedback loop of claim 3, wherein Cygan further discloses the at least one adjustable pole element comprises two adjustable pole elements (column 3, line 66 – column 4, line 28).

Regarding claim 13, Cygan discloses in a feedback loop having a loop and a closed loop frequency response (see Abstract; Figure 1, 100), the loop frequency response having at least one pole and the closed loop frequency response being characterized by a closed loop bandwidth, a method comprising steps of: moving a pole in the loop frequency response yielding a change in the closed loop frequency response (column 1, lines 14-50; column 2, line 4 – column 3, line 2).

Regarding claim 14, the method of claim 13, wherein Cygan further discloses the step of moving a pole is accomplished by switching among a plurality of elements having different impedances (column 3, line 66 – column 4, line 28).

Regarding claim 15, the method of claim 13, wherein Cygan further discloses the step of: moving a zero in the loop frequency response yielding a change in the closed loop frequency response (column 4, lines 45-64).

Regarding claim 16, the method of claim 15, wherein Cygan further discloses the step of moving a zero is accomplished by adjusting an amplifier with an adjustable gain (column 2, lines 43-50).

Regarding claim 17, the method of claim 13, wherein Cygan further discloses the feedback loop contains a power amplifier for amplifying a signal so that it can be transmitted over a radio channel (column 2, lines 22-26).

Regarding claim 18, Cygan further discloses an integrated circuit implementing substantially all the components of a feedback loop with adjustable frequency response, the integrated circuit (see Abstract; Figure 1, 100; column 1, lines 14-50) comprising: at least one adjustable pole element for implementing an adjustable pole in the forward path of the feedback loop (column 2, line 4 – column 3, line 2; column 3, line 66 – column 4, line 28).

Regarding claim 19, the integrated circuit of claim 18, wherein Cygan further discloses at least one adjustable zero element for implementing an adjustable zero in the forward path of the feedback loop (column 2, lines 43-50; column 4, lines 45-64).

Regarding claim 20, Cygan discloses a feedback loop having a forward path and a feedback path comprising (see Abstract; Figure 1, 100; column 1, lines 14-50): at least one

adjustable pole element in the forward path of the feedback loop (column 2, line 4 – column 3, line 2; column 3, line 66 – column 4, line 28); at least one adjustable zero element in the forward path of the feedback loop (column 2, lines 43-50; column 4, lines 45-64); a power amplifier in the forward path of the feedback loop (column 2, lines 22-26); a first mixer in the forward path of the feedback loop (Figure 2, 207); and a second mixer in the feedback path of the feedback loop (Figure 2, 208; column 3, lines 39-51).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,574,992 by Cygan as applied to claim 1 above, and further in view of U.S. Patent No. 5,467,055 by Wray et al, hereinafter Wray.

Regarding claim 12, the feedback loop of claim 1, wherein Cygan further discloses in which the adjustable zero element comprises: an adjustable first amplifier (Figure 1, 144) that amplifies an input signal to create a first amplified signal; a second amplifier (Figure 1, 136) that amplifies the input signal to create a second amplified signal; and a summer (Figure 1, 142) to add the first amplified signal.

Cygan does not disclose a low pass filter that operates on the first amplified signal to create a filtered amplified signal; and a summer to add the filtered amplified signal and the second amplified signal to create an output signal.

Wray discloses an amplifier employing a closed loop feedback (e.g. Cartesian feedback) that comprises at least one adjustable zero element comprising: an adjustable first amplifier (Figure 2, 105) that amplifies an input signal to create a first amplified signal; a second amplifier (Figure 2, 101) that amplifies the input signal to create a second amplified signal; a low pass filter (Figure 2, 106) that operates on the first amplified signal to create a filtered amplified signal; and a summer (Figure 2, 103) to add the filtered amplified signal and the second amplified signal to create an output signal (column 3, lines 21-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the feedback loop of Cygan to include an adjustable zero element as taught by Wray for linearizing the output in a feedback loop. One of ordinary skill in the art would have been lead to make such a modification since an adjustable zero element can include a low pass filter that attenuates the higher frequency components of the input signal.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- U.S. Patent No. 5,066,923 by Gailus et al disclose a Cartesian feedback transmitter that includes a feedback loop comprising: a first and second information signal path and an adjustable zero element

10. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for formal communications intended for entry)

Or call:

(703) 306-0377 (for customer service assistance)

Hand-delivered responses should be brought to: Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Hashem whose telephone number is (703) 305-4302. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

LH
lh
June 25, 2004

FAN TSANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600